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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,793	01/15/2002	Larry G. Stolarczyk	MLF-654-13	6420

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RICHARD BREWSTER MAIN
PATENT ATTORNEY
P.O. BOX 1859
LOS ALTOS, CA 94022

EXAMINER	
LE, LANA N	

ART UNIT	PAPER NUMBER
2685	

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Notice of Allowability	Application No.	Applicant(s)	
	10/046,793	STOLARCZYK, LARRY G.	
	Examiner	Art Unit	
	Lana N Le	2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *01/15/02*.

2. ☒ The allowed claim(s) is/are *1-7*.

3. ☒ The drawings filed on *15 January 2002* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 011502
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

REASON FOR ALLOWANCE

1. Claims 1-7 are allowable over the cited prior art.

2. The following is an examiner's statement of reasons for allowance:

Regarding claim 1, Lautzenhiser et al (US 2002/013,655) disclose a radio power output amplifier, comprising:

a first totem-pole arrangement of power output transistors (FETs Q1, Q2) for pulling a first antenna output connection between ground (ground potential at power splitter) and a battery voltage level (supply voltage; paras. 48, 90);

a buffer Q4 for driving the first totem-pole arrangement of power output transistors according to a radio-carrier input signal (rf input RFsubIN2; fig. 4; paras. 88, 93-94).

However, Lautzenhiser et al and the cited prior art fail to further disclose:

a second totem-pole arrangement of power output transistors for pulling a second antenna output connection between ground and said battery voltage level;

an inverting buffer for driving the second totem-pole arrangement of power output transistors opposite to said radio-carrier input signal.

Regarding claim 4, Lautzenhiser et al (US 2002/013,655) disclose a method for increasing the radio power output of a transmitter (via power amplifier 40), the method comprising the steps of:

driving an antenna via Q4 at RF output (RFsubOUT; fig. 4) from one pair of totem pole transistors FETs Q1 and Q2 (paras. 93-94);

taking a radio transmitter output (RFsubOUT) from each of the junctions of the two pairs of totem-pole transistors Q1 and Q2 (paras. 48, 90).

However, Lautzenhiser et al and the cited prior art fail to further disclose:

differentially driving a balanced antenna from two pair of totem-pole transistors;

driving each of the two pairs of totem-pole transistors oppositely; and

taking a radio transmitter output from each of the junctions of the two pairs of totem-pole transistors.

Regarding claim 5, Stolarczyk (US 4,577,153) disclose a directional drillstring system, comprising:

a drillstring providing for underground boring and further providing a radio communication path (via antennas of downhole transmitter and receiver; fig. 4);

a drillhead mounted at a distal end of the drillstring and providing for drilling (col 12, lines 48-64);

a radio transceiver (fig. 4) associated with the drillhead and providing for radio transmissions cf drillhead activity and underground geology data (col 7, lines 1-33).

Lautzenhiser et al (US 2002/013,655) disclose:

a radio transceiver includes a radio power-output amplifier (40; fig. 4), comprising:

a first totem-pole arrangement of power output transistors (FETs Q1, Q2) for pulling a first antenna output connection (at RFsubOUT to antenna) between ground

(ground potential at power splitter) and a battery voltage level (supply voltage; paras. 48, 90);

a buffer (Q4) for driving the first totem-pole arrangement of power output transistors according to a radio-carrier input signal (rf input RFsubIN2; fig. 4; paras. 88, 93-94).

However, Stolarczyk, Lautzenhiser et al and the cited prior art fail to further disclose:

a second totem pole arrangement of power output transistors for pulling a second antenna output connection between ground and said battery voltage level;

an inverting buffer for driving the second totem-pole arrangement of power output transistors opposite to said radio-carrier input signal.

Regarding claim 7, Lautzenhiser et al (US 2002/013,655) disclose a radio transmitter, comprising:

means (Q4; fig. 4) for driving an antenna at RF output (RFsubOUT) from one pair of totem pole transistors (FETs Q1 and Q2) (paras. 93-94);

means for taking a radio transmitter output (RFsubOUT) from each of the junctions of the two pairs of totem-pole transistors Q1 and Q2 (fig. 4).

However, Lautzenhiser et al and the cited prior art fail to further disclose:

means for differentially driving a balanced antenna from two pair of totem-pole transistors;

means for driving each of the two pairs of totem-pole transistors oppositely; and

means for taking a radio transmitter output from each of the junctions of the two pairs of totem-pole transistors.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lana N Le whose telephone number is (703) 308-5836. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F Urban can be reached on (703) 305-4385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lana Le

December 11, 2004

EDWARD F. URBAN
SUPERVISORY PATENT
TECHNOLOGY CENTER